

Engines of War: The Studebaker Corporation and World War II

An Honors Thesis (HONR 499)

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Muncie, Indiana

December 2019

Expected Date of Graduation

December 2019

Abstract

World War II was not just a battle fought in the Pacific or in Europe. The war was being won back on the home front. Because of the contributions made by Americans throughout the war, the American military was able to receive the food, supplies, and vehicles needed to win the war. Companies across the country devoted their production to fulfilling the needs of the American government. This included the Studebaker Corporation. The South Bend, Indiana automobile manufacturer had a history of supporting the American government dating back to 1857. Throughout the war, the Studebaker Corporation was given its most difficult task. During the war, Studebaker manufactured US6 cargo trucks, engines for the B-17 Flying Fortress, and the M-29 Weasel. These vehicles were not only significant pieces of Studebaker's military history, but also its business history as the company continued to rebuild after the Great Depression. Finally, Studebaker's role in the war effort depicts a part of the state of Indiana's contributions to the war since a majority of the items made by Studebaker were built in Indiana. Through all of these features I analyze how one of the nation's oldest automobile manufacturers in the country was an influential part in the arsenal of democracy.

Acknowledgements

I would like to thank Andy Beckman and Aaron Warkentin of the Studebaker National Museum for letting me work on the research for my thesis as I interned at the museum. Their guidance this summer not only helped me with my thesis but also allowed me to see how to work in a museum.

I would also like to thank Dr. Bruce Geelhoed for advising me as I write my thesis. His help since the beginning of this process has allowed me to learn and grow as a historian.

Finally, I would like to thank my family and my friends for supporting me and my passion for history throughout my time in college.

Process Analysis Statement

Throughout the process of researching and writing my thesis I focused on the information that I found this summer as I interned at the Studebaker National Museum. Originally, I planned to write about the entire history of the Studebaker Corporation's military history. While having this in mind I looked at a variety of sources related to Studebaker's military history. After talking about my thesis with the curator of the museum, he mentioned that there were previous articles written about Studebaker's military history called "Studebaker Goes to War" by Richard Quinn. After reading these articles I began to look through images in the Studebaker Museum's database. These images contained information about the pieces made by the company, the factories during war production, and other information about Studebaker's history. Additionally, I was able to go through the Studebaker National Museum's archives. In the archives I looked through the company's annual reports, a World War I magazine title the *Liberty Bulletin*, and the Studebaker Corporation's workers magazine called the *Studebaker Spotlight*. These magazines provided information about what was occurring on the front lines along with reports from the Studebaker factories. After completing my internship, I met with my advisor and we decided that I would focus primarily on Studebaker's war production during World War II. Following this meeting, I began to look at secondary sources related to my topic. To finalize my research, I went back to the Studebaker National Museum, to go through the rest of the *Studebaker Spotlight* issues and scan images to include in my thesis. While writing my thesis I decided to give a brief history of Studebaker's military history before World War II, then I divided the paper in to three sections, each focusing on one machine created by the company during World War II. Finally, I gave a brief history of the Studebaker Corporation military production following the war.

Just five years after opening a blacksmith shop in South Bend, Indiana brothers Henry and Clement Studebaker received a request unlike any they'd had so far. In 1857 the brothers were asked by George Milburn, a wagon maker located in nearby Mishawaka, to help him fulfill an order for the United States military. The Studebaker brothers agreed to make one hundred wagons that would be used in the ongoing "Mormon War" in Utah.¹ Originally the brothers were given six months to complete this new task. However, they only needed half of that time to fulfill the order.² The efficiency and quality of the wagons made for the American military sparked a relationship between the Studebakers and the American government that evolved over the next century.

Less than a decade after completing the subcontract for the Mormon War, the Studebakers were called upon once again to support the American war effort. As the Union Army entered the Civil War, the American military called upon the company for its assistance. Not long after the war began, the Studebaker brothers received their first war contract directly with the United States government in 1862.³ During the war the South Bend manufacturer produced wagons, ambulances, saddles, and harnesses for the Union Army. After the Civil War ended, the nation began to move west, and Studebaker wagons soon followed. Not only would civilian-owned Studebaker wagons flood across the new frontier, but the company's military vehicles also made the journey West. Often Studebaker wagons were used by the army to transport ammunition and other supplies to the front lines as the American army fought the Indians on the plains. These ventures throughout the West proved to people across the country that Studebaker wagons were able to tackle the diverse and dangerous terrains of the new frontier.⁴

At the end of the nineteenth century Studebaker wagons were used for the first time in an international conflict. With their expanded factories after the Civil War, Studebaker was able to produce more wagons in a shorter time period, and the United States government did not ignore this. As the Spanish-American War began in 1898, Studebaker was once again called upon to fulfill the requests of the American military. This time the army quartermaster requested that the company produce 500 wagons in thirty-six hours. Even with this limited amount of time, the Studebaker Brothers Manufacturing Company completed the order ahead of schedule, by shipping out the order in just under twenty-four hours.⁵ The company's continued excellence in military production helped Studebaker build a reputation as one of the best manufacturers in the world.

Not only were Studebaker wagons tested by the American military, but they were also proven in conflicts around the world. Studebaker wagons traveled to Africa where the British military used them during the Boer War in South Africa. Because of the capabilities of the wagons, General Lord Frederick Roberts expressed how Studebaker wagons "proved superior to any other make of either Cape or English Manufacturer." Around the turn of the century Studebaker wagons were also used in China by the Western Powers during the Boxer Rebellion.⁶ These foreign wars expanded the reputation of Studebaker's wagons around the world, which opened doors to future opportunities in the twentieth century.

As the Studebaker Brothers Manufacturing Company entered the twentieth century, it continued to diversify its production. It expanded into the emerging auto industry by producing both gasoline-powered and electric automobiles. Even though the Studebaker Corporation entered into this rapidly developing field, they did not abandon the wagon and carriage industry.⁷ These decisions opened the company to a variety of opportunities during the First World War.

Once the war broke out in 1914, the Studebaker Corporation saw a “considerable curtailment” in production as a result of the war. Despite the slowing of consumer production that year, the company received its first orders for military supplies from European powers. The first came from the British government in September 1914 for 3,000 transport wagons. Soon after the request from the British, the French and Russians placed orders for military supplies. During the first two years of the war, the Studebaker Corporation received orders for water carts, artillery wheels, ambulances, and automobiles from the Allied Powers, which totaled over \$24,000,000 worth of materiel.⁸ All of this was being simultaneously produced at the South Bend and Detroit plants along with the commercial sales of wagons and automobiles for American consumers. After two years of supplying the Allied Powers, the Studebaker Corporation did not accept any new military contracts in 1916, because of the high demand for new cars for the American public.⁹

Despite the one-year halt of military production, the Studebaker Corporation’s position during the war shifted as the United States drew closer to joining the conflict. In February, 1917 President of the Studebaker Corporation Albert Erskine sent a telegram to President Woodrow Wilson to place the Studebaker factories, “at the disposal of the Government” if it was needed in the near future. This is believed to have made Studebaker the first automobile manufacturer to offer its services to the government for the impending war effort. On April 6, 1917 the United States declared war on the Central Powers. By the end of the month Studebaker was receiving government contracts from the United States military. Throughout the war, Studebaker produced gun carriages for the 4.7” artillery guns, artillery shells, artillery wheels, mine anchors, road

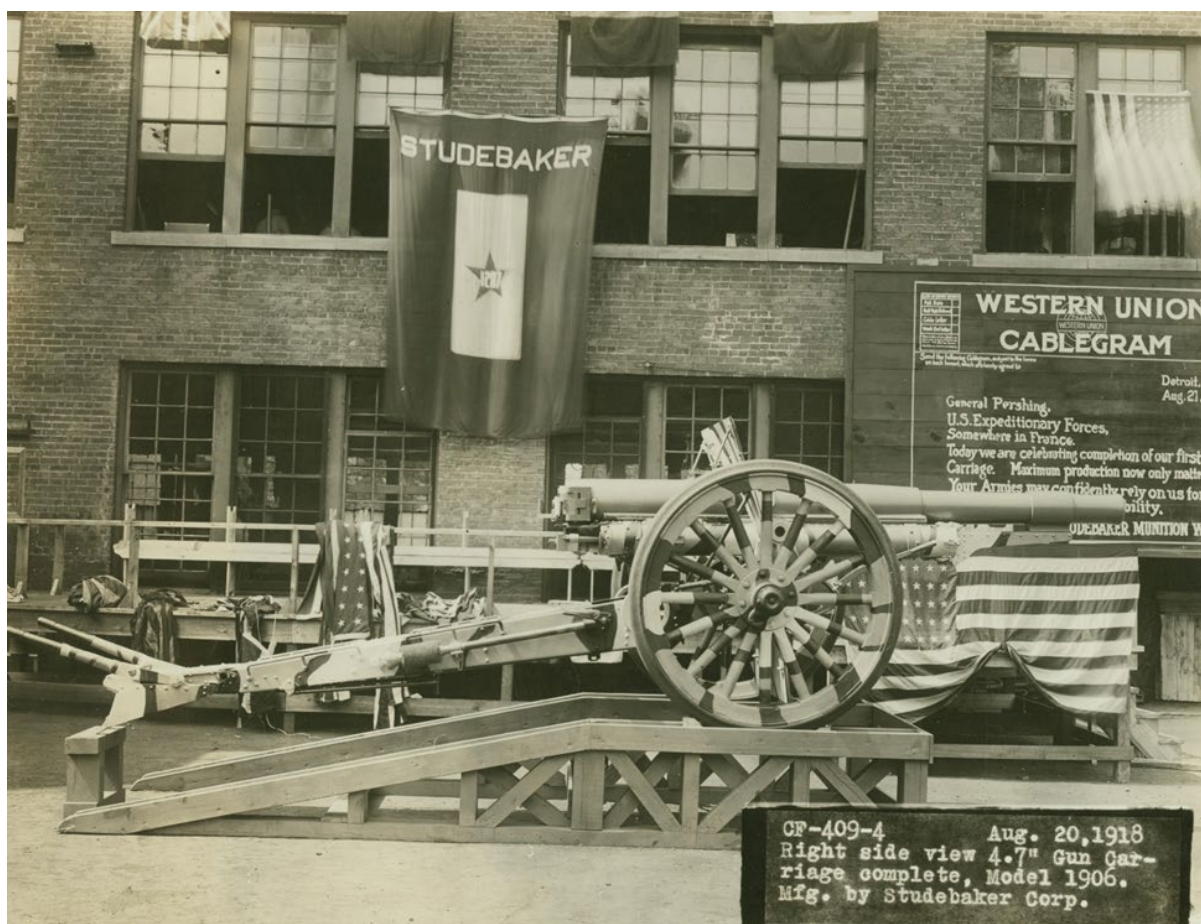


Figure 1 A Studebaker-built gun carriage and a 4.7" artillery gun (Studebaker National Museum)

track lines for tanks, escort wagons, drinking water carts, combat wagons, and artillery harnesses.¹⁰

Once the war ended in November 1918, Studebaker's military contracts with the United States government were terminated by the end of the year.¹¹ During the two-year span of American involvement in the war, Studebaker was a valuable contributor to the American war effort. Erskine and other Studebaker officials put the needs of the American military before their own. By 1918, the company had reduced its automobile production to the lowest level possible, keeping only enough consumer manufacturing to prevent damaging their dealers and the preservation of their commercial organization.¹² These decisions kept the Studebaker Corporation from profiteering from the war. Instead, the company made an "unattractive" 4.8%

profit from its wartime efforts. The Studebaker Corporation took pride in the work it did during the war. Albert Erskine considered the company's war record "the brightest spot" in Studebaker's history.¹³ Not only did the war build a sense of pride in Studebaker workers, but it also proved the quality of Studebaker wagons and automobiles to the rest of the world.

Soon after the war ended, the company discontinued its wagon production in 1920.¹⁴ Throughout the 1920s, Studebaker produced a variety of automobiles at its South Bend and Detroit plants and became a prominent car company in America. Despite its success following the war, the company felt the impact of the Great Depression after the crash of the stock market in 1929. After years of hardship, the Studebaker Corporation filed for receivership in 1933.



Figure 2 A Studebaker-built ambulance during World War I (Studebaker National Museum)

Following this decision, the Studebaker Corporation realized it needed to make changes to prevent the company from dying. In response to these hard times, the Studebaker Corporation redesigned its line of cars and introduced an entry level vehicle to its fleet of automobiles: the Raymond Loewy designed, 1939 Studebaker Champion.¹⁵ These developments at the end of the 1930s helped the company get back on its feet after hitting its lowest point in 1933.

Over the company's first eighty years, the Studebaker Corporation proved to be a reliable manufacturer that produced quality vehicles. This was seen not only in their production for the public but in its military products as well. Through decades of building wagons and automobiles for militaries around the world, Studebaker prepared itself for its toughest military task: supporting the American war effort during World War II. For four years the Studebaker Corporation faithfully served the American government by manufacturing machines for land, air, and even amphibious missions. Through all its contributions during the Second World War, the Studebaker Corporation proved to be a reliable and influential piece of the arsenal of democracy.¹⁶

Early Years of the War

For over two decades, the world was attempting to avoid another global war. However, this all came to an end once Adolf Hitler and the Nazis invaded Poland on September 1, 1939. Soon after the invasion of Poland, the Studebaker Corporation began to receive orders for war materiel.¹⁷ By November 1939 the French government had ordered 2,000 cargo trucks for their fight against the Nazi invasion. The French used modified Studebaker K-Series trucks to help transport needed supplies and troops in their fight on the Western Front. As the French Army continued to be pushed back in late 1939 and early 1940, many of these trucks actually were seized by the Nazis and used throughout the war.¹⁸ As the war continued in Europe, American

companies like Studebaker began to realize that the entrance of the United States military into the war was imminent.

By the end of 1940 Studebaker began to prepare for a spike in military production for whenever the United States joined the Allies in the Second World War. The anticipation of increased demands from the American government led to Studebaker signing contracts to build three factories that later were used to assemble aircraft engines. In addition to the creation of new plants, Studebaker began to create prototypes for new military trucks in 1940 to prepare for the potential war effort. As the Studebaker Corporation prepared for war, the company made it clear that whenever the call came, it would fully support the American war effort and place its factories at the disposal of the government once again.¹⁹

US6 Cargo Truck

Studebaker's first major contribution to the Allies' war effort was the US6 truck. These new cargo transports were two and a half ton trucks with a six-cylinder engine that were either 6x6s or 6x4s, meaning that power was transferred to either six or four of the wheels. Throughout the war US6 cargo trucks were produced by International, REO, GMC and Studebaker. In March of 1941 Studebaker started its official war production after signing a contract with the United States government to build US6 trucks. Three months later, the company was rolling out the first of these newly designed cargo vehicles.²⁰ Out of the vehicles that Studebaker produced during the war, the US6 was the easiest to convert production towards military specifications. This was because Studebaker's South Bend plant was already configured for truck manufacturing, meaning that only minor changes needed to be made for the production of the



Figure 3 A Studebaker US6 rolling down the assembly line. This model is equipped with a dump truck bed. (Studebaker National Museum)

US6. Another feature that made the US6s easy to produce in South Bend was that many of the parts of the recently designed Studebaker “M” Series trucks were used on these military versions.²¹ Throughout the war, Studebaker constructed a number of configurations for the US6. Some of the trucks were built with refrigerated bodies, tank bodies, dump truck beds, and even rocket launcher platforms. After the trucks were constructed, they were loaded on to train cars and transported to their destination.²²

In the early years of the war, most of the US6s were shipped to the Allies in Europe.²³ However, things changed after the Japanese bombed Pearl Harbor on December 7, 1941. Following Franklin Roosevelt’s declaration of war, military production increased dramatically, and commercial production was halted on January 31, 1942.²⁴ Once the United States had entered the war, the US6 was used on all fronts. One region where it was used was in Alaska on

the Alcan Highway, where they transported needed supplies from British Columbia, Canada to Alaska. Throughout the war Studebaker trucks traveled across difficult terrains and through harsh conditions to bring tons of supplies north across the over 1,000-mile route.²⁵ The US6 was also tested in Asia. In 1944, Studebaker US6s were a part of the first journey across the Burma Road into China. This new route into China created a more efficient form of transportation for General Joseph Stillwell and his men who previously were shipping supplies to the Chinese by plane over the mountains of Asia. These journeys across the 200 mile route from Burma helped the Chinese survive the atrocities being committed by the Japanese.²⁶ The success of the US6 in Asia proved that these Studebaker-built trucks were able to handle the hills and jungles of Asia. Not only that, but they were also able to endure the sand and heat of the Persian Gulf where American troops traveled across the sands of Iran and mountains of Southern Russia to aid Soviet forces.²⁷

Even though the US6 was a part of the American war effort, its greatest impact was felt by another member of the Allies. Most of the US6 trucks made by Studebaker during the war were used by the Red Army on the Eastern Front. These trucks were acquired by the Red Army through Lend-Lease agreements with the United States. One of the ways they were used during the war was to receive supplies from the Allies. Because of the limited maritime access during the war, the Soviet Union had to use land routes to receive needed supplies. They decided the best way to do this was to meet American and British troops in southern Russia who had travelled from Iran to the Caucasus Mountains. At these rendezvous, there were often two sets of Studebakers, those with a white star of the United States Army and those with a red star of the



Figure 4 Studebaker US6 trucks being used as a platform for launching missiles by the Red Army. (Studebaker National Museum)

Red Army.²⁸ On the Eastern Front the Soviets found the US6 to be very versatile. The cargo trucks were able to cross major rivers such as the Dnieper River while also being able to trek through the heavy snows of Russia. Soviets used them to carry everything from soldiers to artillery guns. They modified the beds of the cargo trucks into mobile repair shops and communications centers. Some of the trucks were even used on the Eastern Front as a launching platform for missiles.²⁹

As the Red Army began to push the Germans back following the Battle of Stalingrad, Studebaker US6 trucks followed. The Studebaker trucks transported supplies and soldiers to places such as Lublin, Poland; Simferopol in Crimea; Minsk, Belarus; and Stalino in eastern Ukraine. They were even used to parade troops through the devastated city of Bucharest,

Romania in 1944. Because of its versatility and ability to withstand the harsh conditions of the Eastern Front, the Studebaker US6s were considered the “Wheels of the Army” for the Soviet Union.³⁰ These tests on the Eastern Front once again proved the quality of Studebaker vehicles not only to those at Studebaker, but to the entire world. Moreover, the versatility of the US6 made it a valuable piece of the Allies’ fight against the Axis powers.

Studebaker US6 trucks were loved by those in the Red Army and the citizens back home. The trucks were loved by the Red Army so much that in January 1945 the Soviet Army Air Force Lieutenant General L.G. Rudenko sent a photo album on behalf of the Soviet Union to the Studebaker Corporation as a “token of appreciation of the excellent quality of your [Studebaker] military type truck.” A gift like this from the Soviet Union to an American company is believed to have been without precedent during the Second World War. The album contained images of Studebaker trucks moving through the snow, crossing rivers, and soldiers in the Red Army smiling as they worked in the Studebaker-built US6s. Accounts from the Eastern Front recall that Studebaker trucks became so popular during the war that all trucks in the Soviet Union were called “Studebakers.”³¹

High praise for the US6 was not limited to that of the Soviet Union. Many American troops held the Studebaker trucks in high regard. One soldier on the Alcan Highway emphasized how the US6 could take a “terrific beating” and were “miracle trucks” that were able to consistently make the journey from Canada to Alaska. General George Patton also praised the US6 and Studebaker by mentioning how

“You [the US6] have fought side by side with the Infantry, and rolled side by side with the Armor. But no matter what the obstacles, roll you must and roll you did. You never failed me. Your valiant efforts during the closing six months of



Figure 5 US6 trucks parading the Red Army into Bucharest, Romania in 1944.

this conflict have fully confirmed by statement to you of last October—‘the 2 ½ ton truck is our most valuable weapon.’”³²

Over the four years of production for the US6, Studebaker made 197,678 trucks. At its peak the South Bend plant was completing 6,000 trucks each month. Once the war came to an end in August 1945, Studebaker’s contract with the United States government for the US6 was cancelled. Soon after the contract was terminated, Studebaker began to convert its assembly line in order to restart truck production for American consumers.³³

Wright R-1820 Cyclone Engine

The Studebaker Corporation’s contributions to the American war effort would not be limited to the production of automobiles. In January 1941 the company signed a contract with

the United States government that allowed Studebaker the chance to enter a new field.

Studebaker agreed to start the production of “high-power aeronautical engines.” In order to do this, the Studebaker Corporation and the American government agreed to construct three new plants to build aircraft engines. These plants were located in Fort Wayne, Indiana; Chicago, Illinois; and just south of the Studebaker headquarters in South Bend, Indiana. Constructing the plants and training workers for aeronautical production would take several months. It would take longer than expected, because there was confusion between the American government and Studebaker.³⁴ Originally, Studebaker believed that it would be making the Wright R-2600 engine which would be used for the medium-size bombers in American air forces. However, the two sides later agreed that the three recently constructed plants would be used to construct the Wright R-1820 Cyclone engine which would power one of the most significant planes of the Second World War, the B-17 Flying Fortress. After months of preparing these new plants for production, work began on the first Studebaker-built Wright Cyclones in the fall of 1941.³⁵

Studebaker did not work on this project alone. It had the help of Wright Aeronautical Corporation, who designed the R-1820 engine. Wright Aeronautical was the oldest airplane engine manufacturer in the world. Its history dates back all the way to the first flight of the Wright brothers at Kitty Hawk, North Carolina in 1903. Not only were they there for the first flight of man, they also helped design the first military planes in 1908. Similar to Studebaker’s history, Wright had proven itself to be a reliable manufacturer and partner for the United States government. Not only did it make engines that powered the B-17, but it also designed the engines for the B-25 bombers.³⁶ Having a renowned partner like Wright was of great value when Studebaker was preparing for the production of the Cyclone. As the factories were being built, Wright offered the free exchange of information on production methods, equipment, and

tooling to Studebaker. Thanks to the help of Wright Aeronautical, Studebaker was able to have a smoother entrance into aeronautical production. As a result of the cooperation between two corporations, Studebaker was able to complete its first engines in February 1942, just over a year after taking on the task.³⁷

These engines were installed on one of the most valuable and iconic planes of World War II. The B-17 Flying Fortress was designed to be a fast, high-altitude bomber that was also capable of protecting itself and other aircrafts from Axis attacks. The Flying Fortresses measured just under 75 feet long and a wingspan of just over 103 feet. They were designed to have a ceiling of 35,600 feet and were powered by four 1,200 horsepower Wright R-1820 Cyclone engines which allowed the B-17 to reach a top speed just under 300 miles per hour. With these capabilities, the 10-man crew of a B-17 was able to carry a payload weighing up to 9,600 pounds. Along with this, the crew was able to defend itself with up to 13 .50-caliber machine guns mounted around the plane.³⁸



Figure 6 Wright Cyclone engines moving down the assembly line at a Studebaker Aviation plant. (Studebaker National Museum)

The Flying Fortress was designed by Boeing before the war and was first released in 1935. However, the B-17 would not see combat until it was in use by the British Royal Air Force in 1941. Because of its early success, the B-17 proved to be a valuable piece of the United States' air forces. Army Air Corps General Carl Spaatz even went as far as saying that "Without the B-17 we [the Allies] may have lost the war."³⁹

As the Flying Fortress was proving its worth overseas, Studebaker was continuing to develop its process for aeronautical production. In the first few months of 1942, Studebaker was producing ten engines per month. Not only did production remain slow because of the amount of time it initially took to assemble the 8,000 pieces for the 5 feet tall, 9-cylinder engine, but it also took time for the 1,315 pound machine to undergo thousands of inspections.⁴⁰ This would soon change with the incorporation of a new tool in all three of the Studebaker factories.

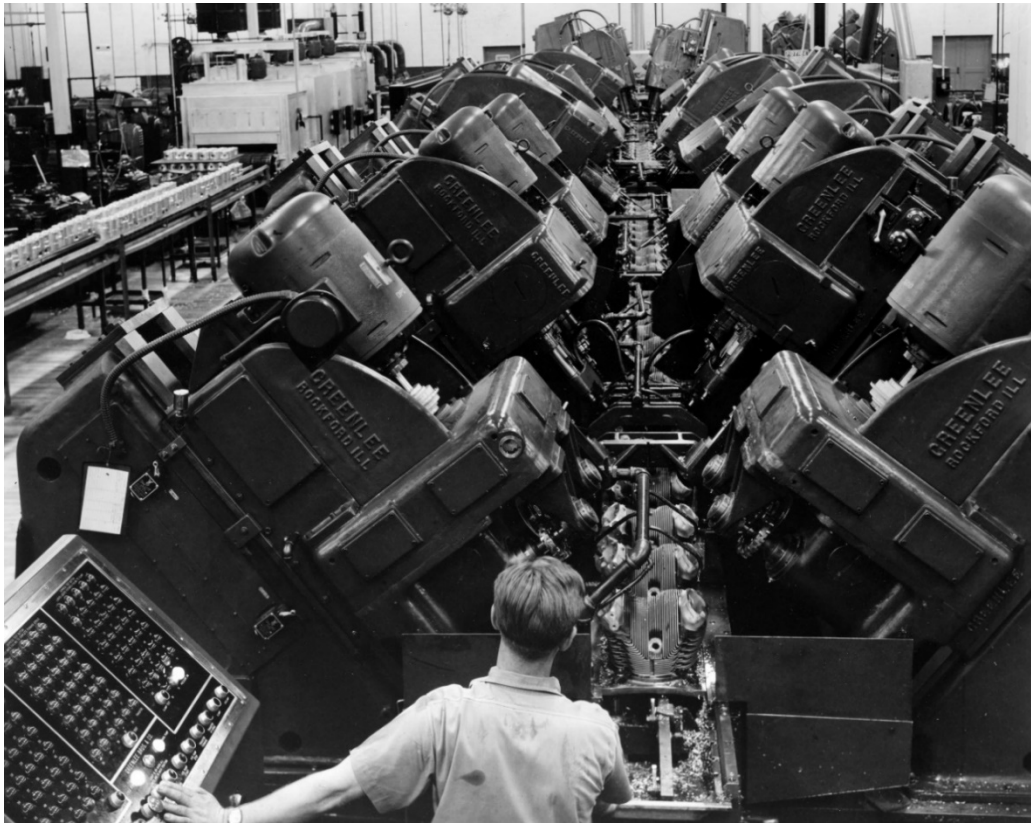


Figure 7A Studebaker employee operating the Greenlee machine designed to enhance the production of Wright Cyclone engines. (Studebaker National Museum)

Studebaker incorporated a tool built by the machine making company Greenlee that changed how the R-1820 was built. Greenlee developed a machine that used hydraulic feed and clamping mechanisms that allowed 162 tasks, which typically took 300-man hours complete, to be done in forty-nine seconds. All the workers had to do to operate this machine was load the parts and press a button, then the machine would take care of the rest. This machine was 175 feet long with 50 operation stations that included 162 tools needed to complete the task. When in full use the machine was able to work on 130 cylinders at one time.⁴¹ With this new tool, Studebaker at peak production was completing 2,300 engines each month. At this rate, Studebaker made over 30,000 engines by the end of 1943.⁴²

Its role in aeronautical production reached new heights in 1943, as it became the sole manufacturer of the Wright Cyclone in late 1943. As a result of becoming the sole provider of the Wright Cyclone engine, almost all Flying Fortresses by 1944 were powered by at least one Studebaker-built engine.⁴³ When the war reached its peak in 1943 and 1944, Studebaker was prepared to supply the American air forces with however many B-17 engines they needed as they continued to fight the Axis Powers. Through its contributions, Studebaker would continued to play a significant role in the American war effort.

Because of the versatility of the Flying Fortress, it was used in all major campaigns of the war. Studebaker-powered B-17s were used in North Africa as Allied forces pushed the Nazis back into Italy. They were also used at the end of the war to bomb the Japanese mainland as the war in the Pacific came to an end in 1945.⁴⁴ Perhaps the greatest contribution though for the Flying Fortress was its role on the Western Front. Their mission in Western Europe were to bomb Axis factories across Nazi occupied Europe. These missions crippled the Nazi war effort, and helped the Allies push back the Germans. Throughout the war, the missions for the B-17s

highlighted the capabilities of these bombers. On these missions, crews flew at high altitudes and were able to bomb precisely targets miles below them.⁴⁵

Not only did the bomber prove its capability to complete the missions it was designed for, but it also displayed the durability of the aircraft and the Studebaker engines powering the plane. As Studebaker continued to make engines for the Flying Fortress, it began testing the durability of the engines. In their studies, Studebaker engineers found that the Wright Cyclone engines were able to fly for 900 hours without any problems. The durability of Wright Cyclones were also seen in combat. Frequently, the Flying Fortresses were shot multiple times during a mission, damaging the wings and sometimes the engines, but they were able to successfully return home. One of the most iconic B-17s during the war, the *Memphis Belle*, in its 25 missions across Europe had nine engines replaced, one right wing, and a tail wing but was able to make it home each time despite these damages. Commanding General of the Army Air Forces H.H. Arnold complimented the Studebaker engines on their ability to withstand harsh conditions that allowed Allied soldiers to return back to base. He mentioned how there were many cases when the bombers were “limping home on two engines,” because two of the engines had been shot, and the Studebaker-built Wright Cyclones were a vital piece in making sure airmen were able to return back to base safely.⁴⁶

The success of the Flying Fortress and the Wright Cyclone engines during the war led to high praises from the men who flew the B-17 to those in the American government. One case of this was mentioned by Major General L.T. Miller who emphasized how the proven reliability of the engines was of “enormous value” because it improved the morale of the airmen to know that they would have an engine that was up to the task at hand. Lieutenant William Gordon, who previously worked in the Chicago Studebaker Aviation plant, also flew the B-17 during the war

and expressed how the planes would “take a terrible beating and yet repairs are kept to a minimum,” and one of the main reason for that is because of the quality of the engines being produced at the Studebaker Aviation factories.⁴⁷ The engines and production in the Studebaker Aviation plants was also recognized by the government, as all three plants were awarded the Army-Navy “E” Award by June 1943. The “E” Award was given to companies for their excellence in quality and production of military materiel during the war. This honor was only given to about 5% of war production plants during the war. Throughout the war, these praises of the job being done by Studebaker workers were read in the employee magazine, the *Studebaker Spotlight*, to compliment and encourage them to keep up the good work on the home front.⁴⁸

As the war in Europe came to an end in the summer of 1945, so did Studebaker’s production of the Wright Cyclone. By May of 1945 the company’s contract with the American government was terminated and the last engine rolled off the assembly line in June. During its four years of production Studebaker produced 63,789 R-1820 engines. In comparison, 12,731 Boeing B-17 bombers were built, meaning that it is likely that the majority of Flying Fortresses used in combat were powered by at least one Studebaker-built engine during the war. This meant that Studebaker engines were a part of some of the most famous missions and aircrafts of World War II.⁴⁹ After the war, the Studebaker Aviation plants in Chicago, Fort Wayne, and South Bend would be given back to the U.S. government. However, Studebaker later bought the Chippewa Avenue plant in South Bend in 1947 and used the facility for truck production after the war.⁵⁰

Even though the Studebaker Corporation had no previous experience in the aeronautical industry, it was able to take on this task and play a vital role in America’s aerial warfare strategy. By becoming the sole manufacturer of engines for one of the most influential planes during

World War II, the company was an important piece in the reliability of the American air forces. Not only did the company provide the military with the engines they needed, but it was able to do it while also meeting the deadlines given to them by the United States government, keeping to Studebaker's reputation of being a reliable asset in times of war.⁵¹

The Weasel

In Studebaker's 1942 Annual Report, the company mentioned that it was working on the US6, Wright Cyclone engines, and had "undertaken other assignments from the armed forces," but did not describe the nature of these assignments.⁵² In May 1942 the British government had requested from the Office of Scientific Research and Development (OSRD) the creation of a new vehicle for a mission that would take place later that year. The new vehicle would be used in Operation Plough, a classified mission that was designed to use small teams of commandos to cross into Norway and sabotage the Nazis' hydroelectric powerplants. In order to complete the mission the British requested a vehicle that could travel through snow quickly and meet the specific needs of the mission. The British had requested that the vehicle be able to fit in a British Lancaster aircraft, that way it could be air dropped to its location. Additionally, the vehicle needed to be able to reach a top speed of 25 miles per hour, climb a thirty degree incline, and have a turning radius of less than twelve feet.

During the early tests OSRD used snowmobiles and snow tractors, but they were unable to fulfill all of the specifications requested. The British wanted a vehicle that could "literally convert snow from a barrier into a highway," but no existing vehicle was able to do this. After these early tests the OSRD decided the best type of vehicle for the mission would be a track-laying vehicle. With this idea in mind the OSRD came up with what would be later nicknamed the "Weasel" because of its ability to strike quickly and stealthily.⁵³ Soon after coming up with

the Weasel, the OSRD asked the Studebaker Corporation for its help in creating this top-secret vehicle.⁵⁴

Following the agreement between the OSRD and Studebaker on May 17, 1942 work began immediately and continued around the clock. Throughout its inception original Weasels were designated by the OSRD as the "T15." The vehicle was designed with the engine placed in the rear and used two levers to steer the machine.⁵⁵ One of the main reasons why the OSRD wanted to work with an automobile company for this project was because automobile manufacturers already had engines and other parts that could be used for the Weasel. With Studebaker as a partner, the Weasel was powered by the Champion inline-six engine and transmission.⁵⁶ Even though the original order had requested 600 Weasels within 180 days for Operation Plough, the cancellation of the mission meant that Studebaker had more time to work on the track-laying vehicle. In October 1942 the first Weasels were unveiled to British and American officers. After proving its capabilities, the T-15 was standardized as the M-28.⁵⁷

Soon after production began for the M-28, Studebaker and the OSRD discovered ways that they could improve the design of the Weasel. The most significant discovery with the M-28 was that the engine's placement in the rear of the vehicle was causing the tracks, when climbing up a hill, to dig a hole making it more difficult to climb high-grade inclines. In response to this, Studebaker decided to move the engine to the front of the vehicle next to the driver. In addition, it decided to expand the track width to 20 inches, which would reduce the rolling resistance of the two tracks. The redesigned Weasel measured just over ten feet long, reached a top speed of 36 miles per hour, and was able to carry up to 3,000 pounds of cargo. The new design also allowed the vehicle to transport four men at a time, with one spot for the driver in the front and

three seats behind the driver.⁵⁸ After making these modifications the new Weasel was standardized as the M-29 and enter production in August of 1943.⁵⁹

As the M-29 was being tested Studebaker engineers found that the maneuverability of the Weasel in the water was subpar. In response to this, an amphibious model of the M-29 was designed. After completing these tests, Studebaker decided to add a false bow and stern to the Weasel along with track skirts to reduce turbulence around the tracks. These additions created a more rounded body that allowed the amphibious Weasel to cut through the water better than the square body of the standard M-29. Another piece added to the amphibious Weasels were two rudders that could easily be released over the stern of the vehicle. In the water, the tracks powered the Weasel and allow it to travel at a speed of four miles per hour. With these additions, the M-29 Weasel was now able to successfully travel on land and in the water with

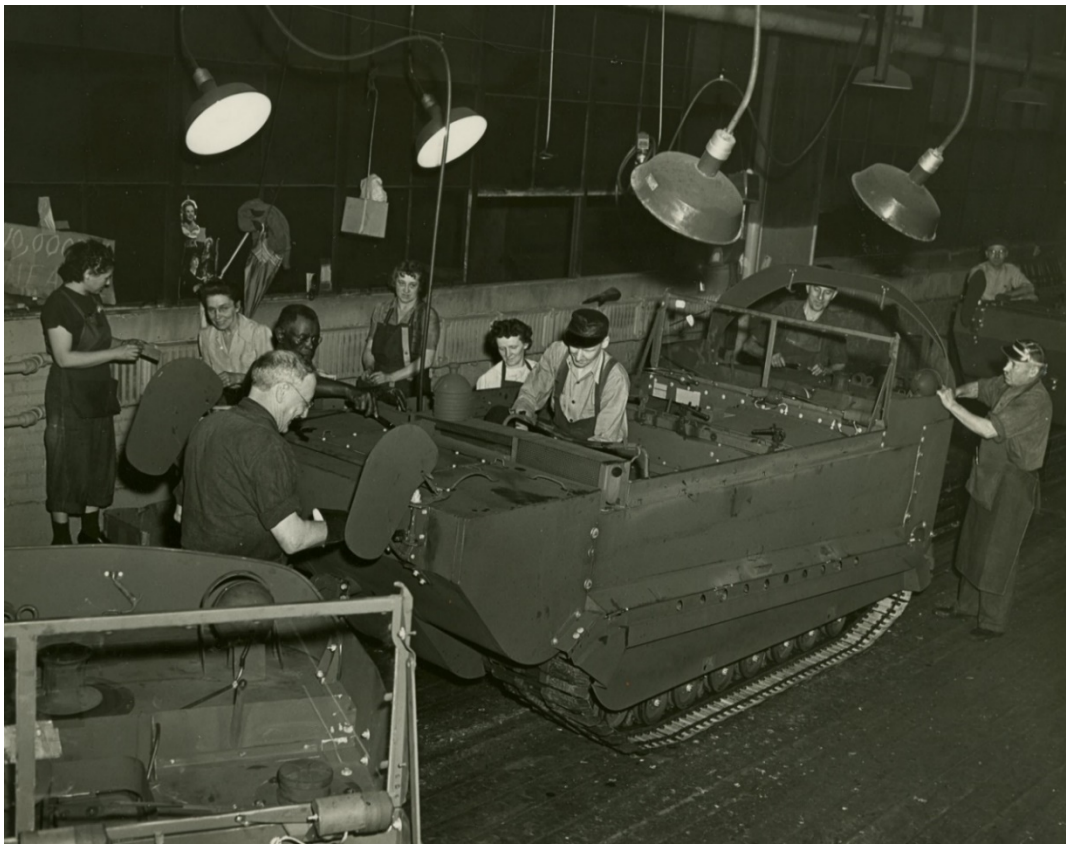


Figure 8 A M-29C Weasel going down the final stages of the assembly line. (Studebaker National Museum)

very little time needed for converting the vehicle.⁶⁰ All troops needed to do was raise or lower the rudders. After these modifications, the amphibious Weasel passed all of the tests it was put through and was standardized as the M-29C and entered production in May of 1944.⁶¹

As these different models of the Weasel were developed, they underwent tests across various terrains. In 1942, they were shipped to Soda Springs, California to test how the track-laying vehicle performed in the snow as they prepared for Operation Plough. Later, the Weasel was tested in the sands of the Indiana Dunes, the mud around Long Island, the St. Joseph River in South Bend, and the bayous of Louisiana.⁶² During these tests the Weasel was able to successfully maneuver across any terrain it encountered because of the limited ground pressure produced by the tracks of the vehicle. As a result of these tests, the Weasel proved to American military officials that it was capable of fighting in any theater of the war.



Figure 9 A M-29C Weasel being tested in the Louisiana bayou. (Studebaker National Museum)

As the Weasel was incorporated into military strategies, its versatility made it a vital piece in a number of different situations. Originally, the Weasel was designed for reconnaissance missions and commando raids like Operation Plough. For these operations a .30 caliber machine gun was attached to the rear of the vehicle. Not only were they attached to the Weasel, but they were also sometimes pulled by the vehicle on sleds during reconnaissance missions.⁶³ Another way that Weasels were used during the war was as cargo transports. With their limited ground resistance, they were able to move troops, ammunition, and other supplies across any terrain they may have encountered. Not only were they able to push through the snow and the mud, but they were also able to pull other small vehicles, such as Jeeps, out of the mud or snow if needed.⁶⁴ The Weasel was also used as a medical evacuation vehicle. With mounts placed around the Weasel, the vehicle was capable of transporting three casualties on stretchers at one time. Finally, the Weasel was used as a recovery vehicle for the American air forces and navy. If a plane was reported to have crashed, the M-29C was used to rescue the members of the downed aircraft.⁶⁵ Through all of these situations the Weasel proved that it could handle almost



Figure 10 A demonstration of a Weasel carrying three wounded soldiers on stretchers. (Studebaker National Museum)



Figure 11 A Weasel on a reconnaissance mission pulling two soldiers using .30 caliber machine guns. (Studebaker National Museum)

any task that was asked of it. No matter what the conditions were, the Weasel was able to make the journey.

The Weasel was not limited to one theater of the war. Soon after the cancellation of Operation Plough, the Weasels were used in the sands of North Africa as the Allies pushed the Axis Powers back into Europe.⁶⁶ The Weasels were also used by American forces as they “island hopped” their way towards Japan in the Pacific. With its limited ground resistance it was able to drive across the rugged terrain of the Philippines. Not only was it able to move through the mud and rain, but also the volcanic ash of Iwo Jima as the Allies neared the Japanese mainland in the spring of 1945.⁶⁷ Finally, the Weasel played a role in military operations in Europe from the Allied invasion of France to their push towards Germany. In June 1944 the Weasels were a part of the Normandy invasion. During the amphibious landings, the Weasels were driving across the beaches picking up wounded soldiers and transporting them to hospitals.

As the Allies continued to push through France, Weasels were seen carrying troops, transporting supplies, and even escorting Nazi prisoners of war outside St. Lo. Even though the seasons in Western Europe changed, the capabilities of the Weasels held true. As the snow began to fall in Europe, the Weasels were frequently sent out to resupply and rescue troops on the front lines. During one mission, Weasels rescued 152 casualties who were stuck in the snow. As the war entered its final year, the Studebaker-powered Weasels were at every major push by the Allies toward Germany, from the Battle of the Bulge to their push towards the Rhine in the spring of 1945.⁶⁸

At the beginning of the Weasel project, all information about the track-laying vehicle was kept top secret. For over two years the Weasel and its purpose were withheld from the public. Because the Weasel was originally designed for special operations, information about the vehicle was not released to the public until after the D-Day invasion in June 1944.⁶⁹ Once the Weasel



Figure 12 A Weasel escorting German prisoners of war near St. Lo, France in 1944. (Studebaker National Museum)

was declassified, the *Studebaker Spotlight* was quick to report the praises of this unique vehicle from the front lines. One of the frequent compliments of the Weasel was its versatility. Former Studebaker employee and Private Frank Vargo wrote home saying that they had “never seen anything of its kind or size that could do what the Weasel could.” Technician Third Grade Charles Brandon commented that nothing had been able to take priority over the Weasel when it came to maintenance of vehicles in the Pacific theater. This was because they were some of the few vehicles able to get through the mud and rice paddies of the Pacific islands and reach the front lines to resupply troops. The Weasels even took priority over the Jeeps of the generals in the Pacific Theater when it came to maintenance because of the need to keep the Weasels in service. Weasels became such a valuable vehicle to the war that even General Douglas MacArthur occasionally used one as his personal transport in the Philippines.⁷⁰ As the Weasels



Figure 13 General Douglas MacArthur (center left) and with his Weasel. MacArthur's Weasel is distinguished by the four stars on the front right corner of the vehicle. (Studebaker National Museum)

were used for more missions throughout the war the demand for Weasels continued to grow. Near the end of the war, there were even discussions of Ford beginning Weasel production if the war were to continue.⁷¹

As the war in Europe came to an end in May 1945, the demand for new Weasels declined. Near the end of the war, Studebaker began manufacturing Weasels alongside trucks for consumers.⁷² Weasel production continued until the Studebaker Corporation received a telegram from the U.S. government cancelling their contract for the Weasel on August 15, 1945, the same day the Japanese announced their surrender. Over four years the Studebaker Corporation had built 15,124 Weasels and were the lone manufacturer of the vehicle throughout the war.⁷³

Unlike the US6 and B-17, Weasels would have a long life following the war. A decade after America's entrance into World War II, the Weasel once again in use by the American military, this time during the Korean War, where it played a similar role to what it did in the Second World War.⁷⁴ With its ability to travel across virtually any terrain and its versatility, the Weasel was able to meet numerous needs for the military for over a decade.

Once the war came to an end in August 1945, so did the Studebaker Corporation's war production. By the fall of 1945 all government contracts had been terminated, and the company began to transition to commercial production. At war's end, Studebaker had made over \$1.2 billion dollars as they helped build the arsenal of democracy.⁷⁵ Over the four years of war the Studebaker Corporation accepted the challenges given to it by the American government. Whether this was a familiar task like building cargo trucks or entering a new industry with the production of the Wright Cyclone engine or helping design a completely new vehicle like the Weasel, the Studebaker Corporation was up to the task. Not only did Studebaker fulfill these

orders, but they would complete them with the quality and efficiency that had made them a successful company for over 90 years. By holding on to these values the Studebaker Corporation never missed a deadline. These demands for excellence would lead to every Studebaker-run factory earning the prestigious Army-Navy “E” Award during the war.⁷⁶

Studebaker’s contribution to the war was not only seen in the machines rolling off the assembly line. During the war there were over 26,000 Americans working in Studebaker factories around the country. These workers would work long days in the factories and would buy more than \$26,000,000 in war bonds over the span of the war.⁷⁷ Another contribution of the Studebaker Corporation during was the leasing of its proving grounds to the American military. From March 1943 until the end of the war, Studebaker’s proving grounds in New Carlisle, Indiana were used by the government to test over 700 different vehicles before they were shipped to the front lines.⁷⁸

No to be forgotten was the contribution of Studebaker workers who decided to serve in the military during the war. Across all Studebaker plants, thousands of employees served in the armed forces and 111 were killed in the line of duty.⁷⁹

After the War

Shortly after the war ended, Studebaker resumed normal automobile production. By September 1945 it was already announcing that it was going to release a 1946 Studebaker Champion in the near future. Because reconfiguring the factories for automobile production took time, the 1946 model looked very similar to those before the war. However, for 1947 Studebaker introduced a completely redesigned line and emphasized that it was the “First by Far with a Postwar Car.”⁸⁰

A few years later, Studebaker once again worked with the government to help with military production. At the start of the Korean War, Studebaker made a two-and-one-half ton truck for the American government, this time named the M-35. These trucks were built at the Chippewa Avenue plant, which made Wright Cyclone engines during the World War II.⁸¹ Along with the M-35, Studebaker once again entered the aeronautics industry, this time by producing the General Electric designed J47 jet engine which was used on the B-47 Stratojet. This was the first swept-wing, multi-engine bomber and was a significant piece to the Air Force's Strategic Air Command.⁸²

The demand for war vehicles increased once again in the early 1960s as tensions rose in Vietnam. This led Studebaker to produce cargo trucks for the army one last time. In March

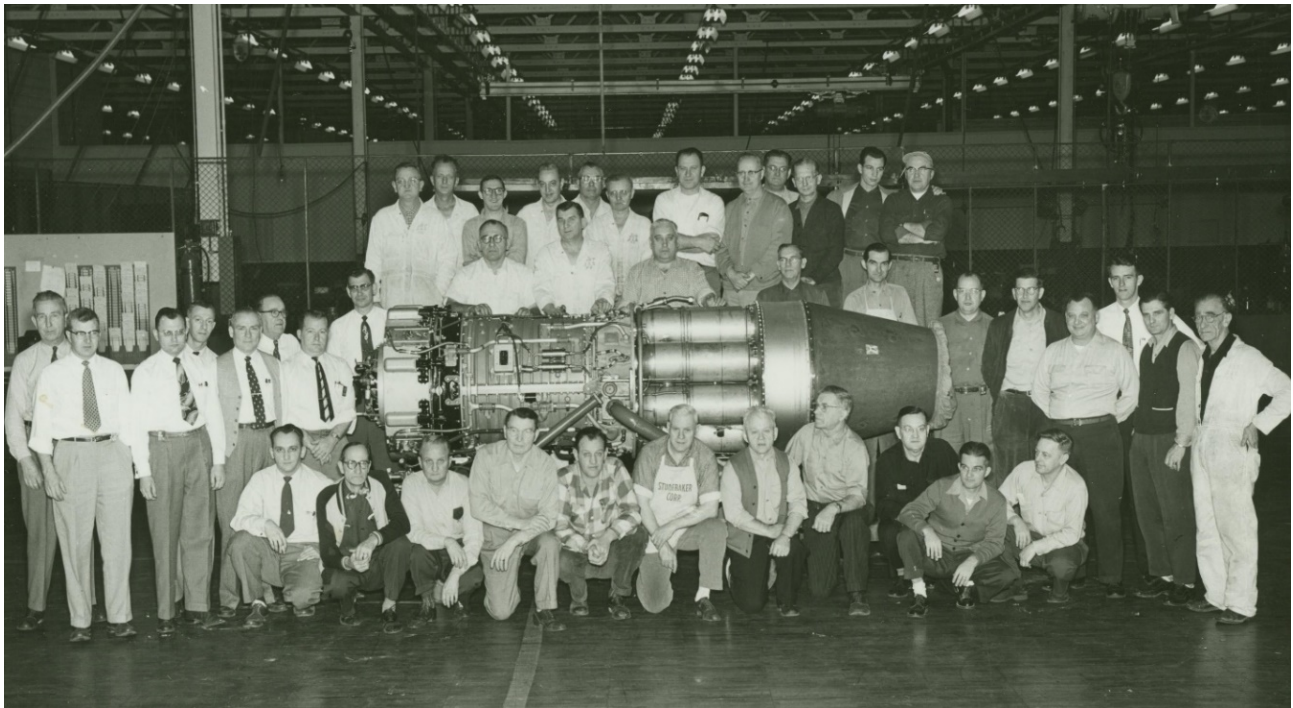


Figure 13 General Douglas MacArthur (center left) and with his Weasel. MacArthur's Weasel is distinguished by the four stars on the front right corner of the vehicle. (Studebaker National Museum)



Figure 15 A M-35 truck rolls down the assembly line at the Chippewa Avenue Plant in South Bend, Indiana. (Studebaker National Museum)

1962, Studebaker received its largest order for trucks since the Korean War.⁸³ However, this was one of the last contracts Studebaker would have with the government. In December 1963, Studebaker closed its South Bend headquarters and moved to Hamilton, Canada. Along with this came the decision to transfer of all of Studebaker's government contracts to Kaiser-Jeep, the producers of the famous Jeep.⁸⁴ Less than a decade later, Kaiser-Jeep was sold to American Motors in 1970. As a way to handle the incoming government contracts, American Motors created AM General, whose headquarters were located in South Bend. AM General is still based out of South Bend today and continues to supply the military with a variety of vehicles.⁸⁵

For over 100 years the Studebaker Corporation had a close relationship with the American government. Dating back to 1857, the company was willing to help the American military fulfill their missions. From wagons, carts, and harnesses to trucks and airplane engines, the Studebaker Corporation proudly helped the American government receive any aid the

company was able to provide. Not only did the Studebaker Corporation complete the tasks at hand, but it completed them with a quality and efficiency that helped the company gain a global reputation as a reliable partner. The greatest example of this was Studebaker's role in World War II. Before the United States entered the war, the company was already preparing to make trucks and airplane engines for the Allies. Studebaker products were used around the world in some of the harshest conditions and were able to withstand the tests. Because of their durability, the Studebaker Corporation and its vehicles received praises from around the world as some of the most reliable machines during the war. Studebaker's contribution to the war effort during World War II was remarkable. Similar to previous wars, the Studebaker Corporation proved to be a loyal and vital piece of the American arsenal of democracy as the nation fought in one the largest conflicts in American history.

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23. Quinn, "Studebaker Goes to War-Part II," 6.
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32. Quinn, "Studebaker Goes to War-Part II," 6-7.

33. *US6 Last truck p03106*, From Studebaker National Museum. See also Studebaker Corporation, "Battle of Supply" and Studebaker Corporation, 1945 Annual Report.
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57. Doyle, *Weasel*, 1-3. See also Quinn, "Studebaker Goes to War-Part II," 7.
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